ABSTRACT

A feed horn assembly has an elongated horn portion having an end aperture and a generally cylindrical metallic interior surface and an elongated dielectric rod portion substantially centered with respect to the horn portion and having an elongated tapered end part extending in the direction of the horn aperture is described. The same type of feed horn assembly with the cylindrical metallic portion removed so as to leave only the tapered dielectric rod to provide small blockage. The horn is designed so as to have a minimal diameter and length and yet can produce a symmetrical horn pattern with a substantially stationary phase center over a large bandwidth. The design procedure also allows maintenance of these symmetrical patterns over a large gain range (6 to 18 dbi).